

If the landowner deems the amount so allowed inadequate, he may appeal to the circuit or superior court for a review of the amount of damages only. I would suggest that, if this provision is ever invoked by the surveyor and board, great care be taken to conform strictly to this law; otherwise, it might cause the county to become involved in a suit at law.

It is also the duty of the surveyor to make a map of all the highways in the county system, setting forth the length and character of the road, the kind and volume of the traffic using such road. In dividing the districts, he shall give each road a distinct number or name and maintain, as far as possible, the patrol system.

If the surveyor is appointed as supervisor, he cannot draw both his salary as surveyor and as road supervisor. He must take one or the other. Last, but not least, he must attend the Annual Road School for not less than one week, and he may be allowed his expenses of transportation, together with lodging, the same to be paid from the highway fund. This is without doubt a good provision, as much benefit will be derived from attendance at this school.

In the performance of your duties, it should be the desire and aim of all to make our county highway systems as nearly perfect as possible in order that those who use the highways and provide the funds will realize the greatest possible benefit.

TIGHTENING UP ON SPECIFICATIONS AND INSPECTION

By Earl Mings, Shelby County Surveyor

Specifications should be worded in plain English, simple words, and complete sentences coherently arranged, so that any ordinary person can thoroughly understand the meaning.

The specifications should be in harmony with the job or work to be done and the plans thereof. Set aside the different classes of work and specify separately just how this work is to be carried on, how it is to be finished, and how it should look when completed, and emphasize the quality of materials and workmanship according to their classifications. When specifications are made up in this way, they will not cause an unnecessary expenditure of money on a project. A very elaborate project will require an elaborate set of specifications; a very plain or ordinary type of project will require a very ordinary set of specifications. You may have a very complete and elaborate set of plans for a project, but with a very loose or incomplete set of specifications, when the project is completed, you may have something on your hands or hanging over your head that you are not at all proud of and are really afraid of.

On the other hand, you may have a very poorly designed set of plans for a project accompanied by an excellent set of specifications (tight specifications), which, with first class materials, workmanship, and engineering, will result in a completed project which may not excite pride for its architectural design, but at least will withstand the usage for which it was intended and not become a hazard to life or to other property. Therefore, I contend that good specifications are far more important than good plans for any project.

I sincerely believe that if the county engineers or the highway supervisors, in preparing specifications for materials to be furnished or work to be done in their respective counties, will get the latest copy of Indiana State Highway Specifications and adhere closely to them, adding clauses that the specific project may necessitate, they cannot go far wrong in the letting of the county's contracts.

We engineers having charge of work being carried on in our respective counties are apt to come into direct contact with all types of contractors. Some have the best of intentions and others have intentions not so good. Because of this last type of contractor, specifications sometimes have to be made very tight. Therefore, if any of the intentions happen to be omitted in the makeup of the specifications, these so-called "smooth" contractors are apt to find a loophole, and in most cases will take every advantage of this opportunity regardless of how fair the supervising engineer is trying to be. Therefore, both types of contractors have to read the same kind of specifications. The engineer should use every precaution in writing specifications to protect life, property, and money, and also to protect himself.

In writing this type of specifications it is very essential to insert clearly all of the things that you intend for the successful contractor to perform, stating clearly the quality of the materials, the type of equipment needed, the quality of the workmanship, the number of men and the qualifications of these men if any are required on certain equipment, the time of starting the project, the time of completion, allowing for any reasonable, necessary, or unavoidable delay that might occur in obtaining the specified kinds of materials or that might occur from bad weather conditions or from any circumstances beyond the control of the contractor or the engineer. State clearly how the contractor is to be paid, what services he is to pay for, how and when he is to pay them, and under whose inspection the work is to be performed.

In conclusion, it is my opinion that tightening up on specifications and making clear, clean-cut specifications is equally essential to the contractor, to the supervising engineer, and to the people whose money is involved or whose life depends on the quality of construction.

This type of specification makes it easier for the contractor to make an intelligent proposal. It protects him, makes him feel that he is dealing with a fair-minded person, and that he is not wasting his good time in making up his proposal only to be excluded when the bids are opened, as he might be if he were bidding from an inferior set of specifications that could be variously interpreted as the contractor sees fit. It is my belief that if specifications were gotten up along these or similar lines, it would ease the minds of those responsible for letting contracts, providing the low bidder accompanies his bid with a suitable bond, because, if the contractor for any reason did not prove satisfactory, his bondsman would have to carry out the intent of the contract.

PREPARATION WORK WHICH SHOULD PRECEDE BITUMINOUS MULCH TREATMENTS

By J. Ray Stout, Union County Surveyor

In a discussion of this subject, I shall limit my remarks to our experience during the past summer in the preparation of the road for a bituminous surface in Union County.

Our program involved three different roads. The problem on each was to provide adequate drainage, shoulders of proper alignment, and a hard, smooth road surface of proper cross-section. Each road required slightly different preparations to meet these requirements, and consequently the unit costs varied.

The first road prepared was the Velocipede Pike, running due west out of College Corner. The work consisted of widening culverts and installing new ones where needed, cutting and grubbing bushes and trees along the right of way, side ditching, and widening shoulders. The greatest item of expense in this work was the widening of shoulders. In this construction, the sod was worked to the outer edge to stabilize the fill and to prevent erosion.

The shaping of the road consisted of grading down a portion of the crown and blading the loose material toward the edges of the roadway. This thickened and stabilized the outer edge and improved the riding qualities. Thus, the traffic was inclined to make use of the entire roadway, packing the loose material very rapidly. Care was taken at all times not to cut through the surfacing material and impair the base in any way. The stone which interfered with this work was taken out by hand labor.

We moved next to the College Corner and Richmond Pike, lying in the eastern part of the county and connecting State